AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1. (Currently Amended) A device comprising a plurality of microlocations:

wherein the microlocations each comprise an underlying working microelectrode on a

substrate, wherein the microelectrode comprises platinum silicide (PtSi),

wherein at least some of the microelectrodes are covered by a permeation layer,

further wherein at at least one microlocation the permeation layer is covalently

attached to the electrode by linker moieties,

and wherein the covalent attachment between the electrode and the linker and the

permeation layer material is stable at a current density of at least 0.10 nA/µm².

2. (Previously Presented) The device of claim 1 wherein the permeation layer

comprises a material selected from the group consisting of an inorganic sol-gel, a synthetic polymer

hydrogel, and a carbohydrate hydrogel.

3. (Canceled)

IR1:1054282.1

2

Attorney Docket: 612,404-378

(formerly 265/263)

4. (Previously Presented) The device of claim 1 wherein the linker has the formula

wherein:

X is selected from the group consisting of acrylate, methacrylate, acrylamide, methacrylamide, allyl, vinyl, acetyl, amine, substituted amine, epoxy and thiol;

SPACER is selected from the group consisting of alkyl, aryl, mono- or polyalkoxy, ethyleneglycol, polyethyleneglycol, mono- or polyalkylamine, mono- or polyamide, thioether derivatives, and mono- or polydisulfides;

A and B are selected from the group consisting of Oxygen-R, Cl, Br, and an X-SPACER moiety, or any combination thereof, wherein R is H, alkyl, methyl, ethyl, propyl, isopropyl, and branched or linear alkyl of 4 to 10 carbon atoms; and

C is a hydrolyzable moiety selected from the group consisting of Oxygen-R, Cl, and Br, wherein R is H, branched alkyl, methyl, ethyl, propyl, isopropyl, and branched or linear alkyl of 4 to 10 carbon atoms.

Attorney Docket: 612,404-378

(formerly 265/263)

5. (Previously Presented) The device of claim 4 wherein the linker is selected from the group consisting of:

- 6-14. (Cancelled)
- 15. (Previously Presented) The device of claim 1 wherein the permeation layer is a hydrogel comprising a material selected from the group consisting of: agarose, glyoxylagarose, acrylamide, methacrylamide, polyacrylamide, and other synthetic polymers.
- 16. (Previously Presented) The device of claim 15 wherein the hydrogel comprises glyoxylagarose.
- 17. (Previously Presented) The device of claim 15 wherein the hydrogel comprises polyacrylamide.
- 18. (Previously Presented) The device of claim 1 wherein the electrode is a metal/silicide electrode selected from the group consisting of platinum silicide (PtSi), tungsten silicide (WSi), titanium silicide (TiSi), and gold silicide (AuSi).

Attorney Docket: 612,404-378

(formerly 265/263)

19. (Previously Presented) The device of claim 1 wherein the electrode is a metal/metal electrode selected from the group consisting of platinum/titanium (PtTi) and gold /titanium (AuTi).

- 20. (Previously Presented) The device of claim 1 wherein the electrode is an organic electrode selected from the group consisting of poly(phenylene vinylene), polythiophene, and polyaniline.
- 21. (Previously Presented) The device of claim 4 wherein the linker is an acrylate linker selected from the group consisting of:

CH₂=CHCOOCH₂CH₂CH₂Si(OCH₃)₃.

CH₂=CHCOOCH₂CH₂CH₂SiCl₃.

CH₂=CHCOOCH₂CH₂CH₂Si(CH₃)(OCH₃)₂

 $CH_2 = CHCOOCH_2CH_2CH_2Si(CH_3)_2(OCH_3),$

CH₂=CHCOOCH₂CH₂CH₂Si(CH₃)Cl₂, and

CH₂=CHCOOCH₂CH(OH)CH₂NHCH₂CH₂CH₂Si(OC₂H₅)_{3.}

Attorney Docket: 612,404-378

(formerly 265/263)

22. (Previously Presented) The device of claim 4 wherein the linker is a methacrylate linker selected from the group consisting of:

CH₂=C(CH₃)COOCH₂CH₂CH₂Si(OCH₃)₃,

CH₂=C(CH₃)COOCH₂CH₂CH₂SiCl₃,

CH₂=C(CH₃)COOCH₂CH₂CH₂Si(CH₃)(OCH₃)₂.

CH₂=C(CH₃)COOCH₂CH₂CH₂Si(CH₃)₂(OCH₃),

CH₂=C(CH₃)COOCH₂CH₂CH₂Si(CH₃)Cl₂, and

CH₂=C(CH₃)COOCH₂CH(OH)CH₂NHCH₂CH₂CH₂Si(OC₂H₅)_{3.}

23. (Previously Presented) The device of claim 4 wherein the linker is an acrylamide linker selected from the group consisting of:

CH₂=CHCONHCH₂CH₂CH₂Si(OC₂H₅)₃.

CH₂=CHCONHCH₂CH₂CH₂SiCl₃,

CH₂=CHCONHCH₂CH₂CH₂Si(CH₃)(OCH₃)₂

CH₂=CHCONHCH₂CH₂CH₂Si(CH₃)₂(OCH₃),

CH₂=CHCONHCH₂CH₂CH₂Si(CH₃)Cl₂.

CH₂=CHCONHCH₂CH(OH)CH₂NHCH₂CH₂CH₂Si(OC₂H₅)₃, and

CH₂=CHCONHCH₂CH₂CONHCH₂CH₂CONHCH₂CH₂Si(OC₂H₅)_{3.}

IR1:1054282.1

Attorney Docket: 612,404-378

(formerly 265/263)

24. (Previously Presented) The device of claim 4 wherein the linker is a methacrylamide linker selected from the group consisting of:

CH₂=C(CH₃)CONHCH₂CH₂CH₂Si(OCH₃)₃,

CH₂=C(CH₃)CONHCH₂CH₂CH₂SiCl₃,

CH₂=C(CH₃)CONHCH₂CH₂CH₂Si(CH₃)(OCH₃)₂,

CH₂=C(CH₃)CONHCH₂CH₂CH₂Si(CH₃)₂(OCH₃),

CH₂=C(CH₃)CONHCH₂CH₂CH₂Si(CH₃)Cl₂, and

CH₂=C(CH₃)CONHCH₂CH(OH)CH₂NHCH₂CH₂CH₂Si(OC₂H₅)₃.

25. (Previously Presented) The device of claim 4 wherein the linker is an allyl derivative linker selected from the group consisting of:

CH₂=CHCH₂NHCH₂CH₂CH₂Si(OCH₃)₃, CH₂=CHCH₂SiH(OCH₃)₂, CH₂=CHCH₂Si(CH₃)₂Cl, CH₂=CHCH₂SiHCl₂, and CH₂=CHCH₂Si(OCH₃)₃.

26. (Previously Presented) The device of claim 4 wherein the linker is an amino derivative linker selected from the group consisting of:

H₂NCH₂CH₂NHCH₂CH₂CH₂Si(OCH₃)₃, H₂NCH₂CH₂CH₂CH₂CH₂CH₂NHCH₂CH₂CH₂Si(OCH₃)₃, H₂NCH₂CH₂CH₂Si(OCH₃)₃, and H₂NCH₂CH₂CH₂Si(OC₂H₅)₃.

27. (Previously Presented) The device of claim 4 wherein the linker is an epoxy derivative linker selected from the group consisting of:

CH₂-CHCH₂OCH₂CH₂CH₂Si(OCH₃)₃ and CH₂-CHCH₂CH₂CH₂CH₂Si(OC₂H₅)₃.

Attorney Docket: 612,404-378

(formerly 265/263)

28. (Previously Presented) The device of claim 5 wherein the linker is H₂NCH₂CH₂CH₂Si(OCH₃)₃.

- 29. (Previously Presented) The device of claim 5 wherein the linker is H₂NCH₂CH₂CH₂CH₂CH₂CH₂Ci(OCH₃)₃.
- 30. (Previously Presented) The device of claim 5 wherein the linker is CH₂=C(CH₃)COOCH₂CH₂CH₂Si(OCH₃)₃
 - 31. (Canceled)
- 32. (Previously Presented) The device of claim 1 wherein the resulting covalent attachment between the electrode and the linker and the permeation layer material is stable at a current density of at least 0.2 nA/µm².
- 33. (Previously Presented) The device of claim 1 wherein the resulting covalent attachment between the electrode and the linker and the permeation layer material is stable at a current density of at least $0.4 \text{ nA/}\mu\text{m}^2$.